quickstart guide

hp StorageWorks NAS b2000 v2

First Edition (February 2003)

Part Number: 325881-001

This Quick Start guide provides information about how to deploy the HP StorageWorks NAS b2000 v2.

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NAS b2000 v2 Quick Start Guide
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about this guide

This Quick Start guide provides information to help you deploy the HP StorageWorks NAS b2000 v2.

About this Guide topics include:

- Overview, page vi
- Conventions, page vii
- Rack Stability, page ix
- Getting Help, page x

Overview

This section covers the following topics:

- Intended Audience
- Prerequisites
- Related Documentation

Intended Audience

This book is intended for use by technical professionals who are experienced with the following:

- Microsoft® administrative procedures
- file-sharing protocols

Prerequisites

Before you set up the NAS b2000 v2, HP recommends the reader obtain supplemental documentation relative to the items listed above in the section titled Intended Audience.

Related Documentation

In addition to this guide, HP provides the following corresponding information:

- *HP StorageWorks NAS b2000 v2 Administration Guide*
- HP StorageWorks NAS b2000 v2 Quick Reference and Rack Installation poster
- *HP StorageWorks NAS b2000 v2 Release Notes*

Conventions

Conventions consist of the following:

- Document Conventions
- Text Symbols
- Equipment Symbols

Document Conventions

The document conventions included in Table 1 apply in most cases.

Table 1: Document Conventions

Element	Convention
Cross-reference links	Text: Figure 1
Key and field names, menu items, buttons, and dialog box titles	**Bold**
File names, application names, and text emphasis	*Italics*
User input, command and directory names, and system responses (output and messages)	`Monospace font` `COMMAND NAMES` are uppercase monospace font unless they are case sensitive
Variables	*`<monospace, italic font>`*
Website addresses	Underlined sans serif font text: http://www.hp.com

Text Symbols

The following symbols may be found in the text of this guide. They have the following meanings.

WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.

Caution: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Equipment Symbols

The following equipment symbols may be found on hardware for which this guide pertains. They have the following meanings.

Any enclosed surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

WARNING: To reduce the risk of personal safety from electrical shock hazards, do not open this enclosure.

Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

WARNING: To reduce the risk of personal safety from a hot component, allow the surface to cool before touching.

Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

WARNING: To reduce the risk of personal safety from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.

Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal personal safety or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

Rack Stability

Rack stability protects personal and equipment.

WARNING: To reduce the risk of personal safety or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- In single rack installations, the stabilizing feet are attached to the rack.
- In multiple rack installations, the racks are coupled.
- Only one rack component is extended at any time. A rack may become unstable if more than one rack component is extended for any reason.

Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our website: http://www.hp.com.

HP Technical Support

In North America, call technical support at 1-800-652-6672, available 24 hours a day, 7 days a week.

Note: For continuous quality improvement, calls may be recorded or monitored.

Outside North America, call technical support at the nearest location. Telephone numbers for worldwide technical support are listed on the HP website under support: http://www.hp.com.

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

HP Storage Website

The HP website has the latest information on this product, as well as the latest drivers. Access storage at: http://www.hp.com. From this website, select the appropriate product or solution.

HP Authorized Reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP website for locations and telephone numbers: http://www.hp.com.

Product Overview

1

This chapter describes the configuration options and setup and configuration dependencies and requirements for the HP StorageWorks NAS b2000 v2.

Configuration Options

The NAS b2000 v2 is specifically designed for file serving; it offers optimized performance for a growing environment. Storage capacity can increase as a business grows without down time or compromised performance.

The NAS b2000 is available in two models: an internal storage model and an external storage model.

The internal storage model ships with an integrated Smart Array 5i+ Controller for internal storage, three 146-GB drives for data, and two 36.4-GB drives for the operating system.

The external SCSI port of the integrated Smart Array 5i+ Controller can also support one additional HP StorageWorks 4300 Family storage enclosure for an extra 2 TB (terabyte) of storage as an external storage option with 146-GB drives.

Both models support up to three Smart Array 5300 Family array controllers populated into the available PCI slots. Each Smart Array supports four storage enclousures for a total support of 12 enclosures when all three Smart Arrays are in use. A total of 27 TB of storage spanning one hundred eighty-six 146-GB hard drives is supported with all options when fully populated.

Managing the NAS b2000 v2

The NAS b2000 v2 is configured at the factory with default system settings and with the NAS operating system installed. Storage, however, is not pre-configured, allowing the NAS administrator to tailor the organization and configuration of the storage to specific environmental needs. Refer to the "Storage Management Overview" section later in this chapter for more information.

The NAS administrator uses the Array Configuration Utility (ACU) to manage the hardware storage and uses Windows Logical Disk Manager (LDM) to manage the logical storage.

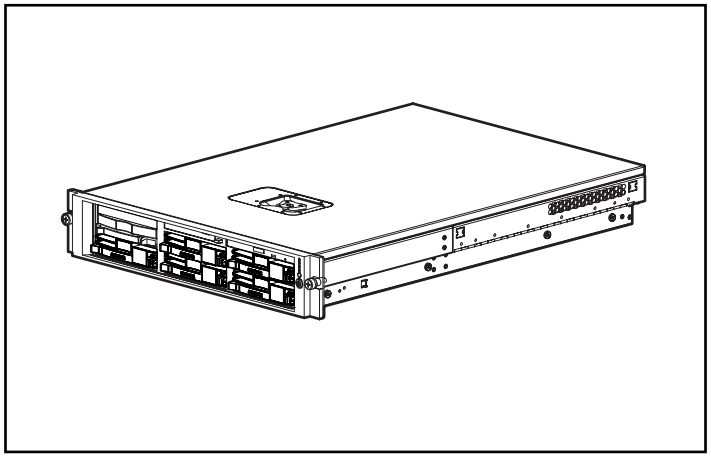

Figure 1: NAS b2000 v2 internal device

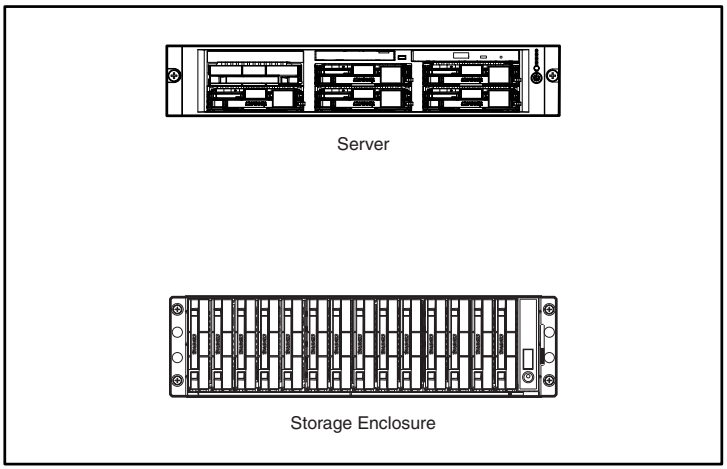

Figure 2: NAS b2000 v2 external device

Dependencies and Requirements

Specific conditions must be met in order for the NAS b2000 v2 to operate.

Storage Requirements

To protect against data loss from hard drive failure, arrays should be configured with fault tolerance in mind. Several fault tolerance methods have been devised and are described in the *HP StorageWorks NAS b2000 v2 Administration Guide*.

IP Networking and Setup Requirements

The following are IP networking and setup requirements needed for a NAS b2000 v2 device:

- Windows-based PC running Microsoft Internet Explorer 5.5 (or later) on the same network segment as the NAS b2000 v2; this will be used to set up and administer the NAS device.
- A single Ethernet connection on a switch or hub for the embedded Integrated Lights-Out (iLO).
- Additional Ethernet connection ports to client subnets (depending on network options ordered).

Note: The RapidLaunch client and NAS b2000 v2 must be on the same network segment as the management port or the RapidLaunch utility will not detect the NAS b2000 v2.

Deploying the NAS b2000 v2 on the Network

The default shipping configuration contains two 10/100/1000 integrated network interface controller (NIC) ports for client data access. These data ports also allow access to the Web user interface (WebUI) that accompanies the product. It is from the WebUI that most management and administrative procedures can be accomplished. The embedded Integrated Lights-Out (iLO) provides an additional management port for remote console and diagnostics. HP recommends that this connection be placed on a management LAN separate from the corporate infrastructure if it is present.

The NAS b2000 v2 supports the use of NIC teaming. NIC teaming provides failover and load balancing of network ports of the NAS b2000 v2. NIC teaming requires the network cables to be installed on the same subnet to enable it to work. However, HP does not recommend the assignment of IP addresses to the ports that will be teamed or load-balanced prior to the installation and setup of NIC teaming. For this reason, HP recommends that you set all network ports to DHCP. For information concerning the configuration of NIC teaming after setup is complete, see the administration guide.

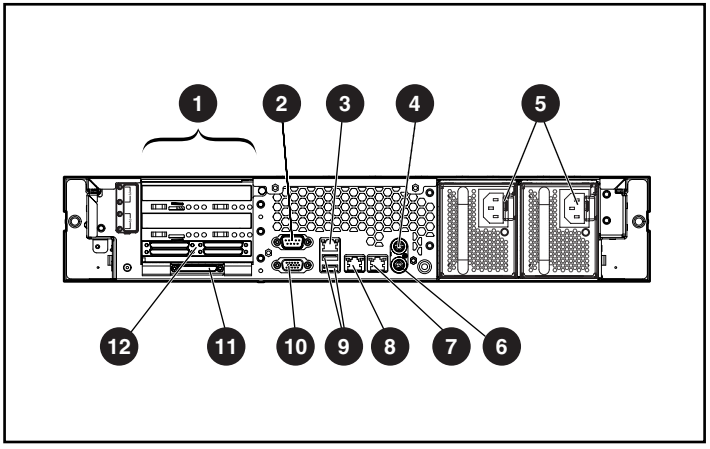

Figure 3: Rear panel connectors

Table 2: Rear Panel Connectors

Item	Description
❶	PCI expansion slots
❷	Serial connector (teal)
❸	Integrated Lights-Out (iLO Eth)
❹	Mouse connector (PS/2) (green)
❺	Power connectors
❻	Keyboard connector (PS/2) (purple)
❼	RJ-45 connector for NIC 1 (Eth0)
❽	RJ-45 connector for NIC 1 (Eth1)
❾	USB connectors (2) (black)
❿	Video connector (blue)
⓫	VHDCI SCSI connector (SCSI port 1)
⓬	Smart Array 5304 controller *

Note: * Included with NAS b2000 v2 external model only.

Setup and Configuration Overview

Setting up systems is a well-defined process. This section is intended as an overview of the process, not a detailed list of step-by-step instructions. Step-by-step procedures are documented in the administration guide. Some of the steps are driven by wizards within the WebUI. In either type of setup, it is important to read all of the supplied documentation before starting. Relevant documents include:

- *HP StorageWorks NAS b2000 v2 Administration Guide*
- *HP StorageWorks NAS b2000 v2 Quick Reference and Rack Installation Guide*
- *HP StorageWorks NAS b2000 v2 Release Notes*

The following describes how to configure the NAS b2000 v2.

1. Configure the NAS device using Chapters 2 and 3 from this guide.
2. **This is an optional step**. Install NIC teaming software and create fault tolerant or load-balanced network ports. Follow the recommendations found in this guide and in the administration guide.
3. **This is a recommended step**. Place the NAS device into an Active Directory or Windows NT 4.0 domain for ease of manageability.
4. With the system online, create the arrays and logical volumes (LUNs) using ACU one at a time so that they can be identified easily in Device Manager. See the procedure in the storage management section of the administration guide.
5. Using Logical Disk Manager, write signatures to the disks, mark them as basic or dynamic, create corresponding partitions, extended partitions or volumes, assign drive letters or mount points, and format the drives. See the LDM online help for full details on this procedure.
6. **This is an optional step**. Enable protocols such as NFS sharing, NCP, and/or AppleTalk. See the administration guide for this procedure in detail.
7. **This is an optional step**. Create shares corresponding to the protocols mentioned in the previous steps. Grant access rights to the shares.
8. Activate the iLO port by locating the Integrated Lights-Out Advanced Pack License Installation Card and following the instructions enclosed with this system.
9. Read the remaining sections of the administration guide.

Storage Management Overview

This section provides an overview of the components that make up the NAS storage structure. A complete discussion of the components and their relationships is available in the administration guide.

Caution: This section on storage management and Windows LDM is required reading material for the NAS administrator. This section develops the concepts and requirements that serve as the basis for successfully using an *HP StorageWorks* NAS device. Failure to read this section and the appropriate sections on storage management in the administration guide may lead to data loss or file corruption.

Storage Management Elements

Figure 4 provides an illustration of the various storage components of the NAS b2000 v2. Storage is broken up into five major divisions:

- Storage elements
- Logical storage elements
- Persistent Storage Manager Elements
- File system elements
- File sharing elements

Each of these elements is composed of the previous level's elements.

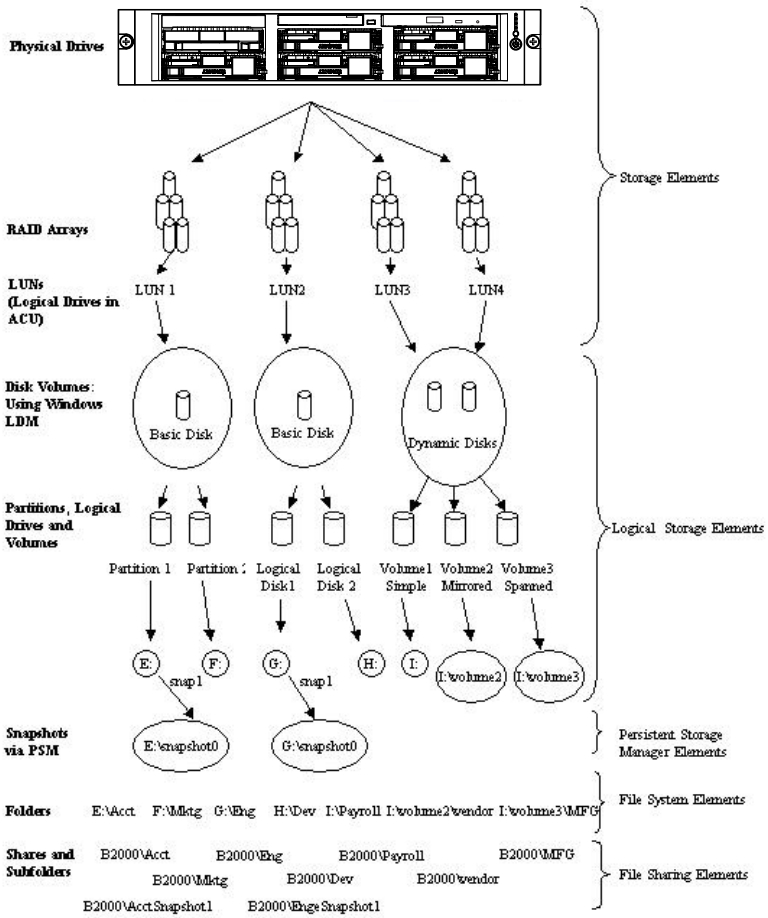

Figure 4: Storage management process

Storage Elements

The lowest level of storage management on the NAS b2000 v2 occurs at the physical drive level. Physical drives are grouped into RAID arrays for fault tolerance and better performance. The end user should configure RAID arrays using ACU. Refer to the administration guide for more details on creating RAID arrays.

Logical Storage Elements

Logical Storage elements consist of those components that translate the physical storage elements to the file system elements as presented in Figure 4. The NAS b2000 v2 utilizes the Microsoft Logical Disk Manager (LDM) for managing the various types of disk presented to the file system. LDM has two types of LUN presentation, basic disk and dynamic disk. Each of these types of disk has special features that enable different types of management. Through the use of basic disks, partitions or extended partitions may be created. Partitions can only encompass one LUN up to 2 TB in size. By using dynamic disks, you can create volumes that span multiple LUNs up to 64 TB in size. Volumes or partitions can then be assigned a drive letter or mount point, formatted, and the presented to the operating system for use.

Persistent Storage Management Elements

Persistent Storage Manager lets the administrator make replicas of disks, called snapshots. Snapshots enable the creation of multipurpose logical replicas of production data without having to physically copy the data. They can be used to immediately recover a lost file or directory, to test a new application with realistic data without affecting the “real” data, and to serve as a source of data for backups. Snapshots are a temporary backup of the data and are not meant to be permanent.

Snapshots use existing space from the volume, partition, or logical drive to maintain the data required to present the original data. This space is termed the cache file. By default the cache files consumes 10 percent of the available space of a logical storage element. Snapshots can be read only, read-write or always keep, and if they are shared, users can access a snapshot and edit the data. If snapshots are shared with write access enabled, a second snapshot of the original volume should be created. There is no backup of the original snapshot unless a second snapshot of the volume is taken.

Snapshot Facts:

- Snapshots are created on a per volume, partition, or logical drive basis.
- Snapshots can be read-only, read-write or always keep.
- Snapshots are mounted as a mount point on the root of the volume, partition or logical drive.
- Snapshots can be shared in the same manner as any other folder, drive or mount point.
- Snapshots are meant to be temporary in nature.
- Snapshots are automatically deleted if disk space becomes critical and they are not set to always keep.
- Persistent Storage Manager only writes to the cache file on the first change of the underlying data.

Full documentation of Persistent Storage Manager may be found in Chapter 6 of the administration guide.

File System Elements

File system elements are composed of the folders and subfolders that are created under each logical storage element (partitions, logical disks, and volumes). Folders are used to further subdivide the available file system providing another level of granularity for management of the information space. Each of these folders can contain separate permissions and share names that can be used for network access. Folders can be created for individual users, groups, projects, etc. Refer to the administration guide for more details on file system elements.

File-Sharing Elements

The NAS b2000 v2 supports several file-sharing protocols, including CIFS, NFS, FTP, HTTP, NCP, and AppleTalk. On each folder or logical storage element, different file sharing protocols can be enabled using specific network names for access across a network to a variety of clients. Permissions can then be granted to those shares based on users or groups of users in each of the file sharing protocols. Refer to the administration guide for more details on file system elements.

Before You Begin

2

This chapter describes the preinitialization and configuration tasks required for the HP StorageWorks NAS b2000 v2.

Preinitialization

Before beginning the installation process, verify that the hardware installation is complete. Verify that the NAS b2000 v2 is completely installed in the rack and that all cables and cords are connected. The setup utility documented here and in the next section only provide basic setup for the network components of the NAS b2000 v2.

Note: If you need assistance with rack installation or hardware connections, refer to the quick reference and rack installation poster included in the shipping carton.

Collect Information for Configuration

Choose a host name and collect general information before initializing the NAS b2000 v2.

Configuration Information

Collect the general information required to initialize the NAS device for both dynamic host configuration protocols (DHCP) and non-DHCP configurations. You will be asked for this information during configuration, as shown in Table 3. Become familiar with this information before attempting to configure the NAS device.

Table 3: Configuration Information

Part A: To be completed for DHCP and non-DHCP configurations			
Server Host Name:			
Integrated Lights-Out Name:	Integrated Lights-Out Default User:	Integrated Lights-Out Password:	
Note: If NIC teaming is to be implemented, determine which ports will be teamed. Configure these Ethernet ports for DHCP protocol. For more information, refer to the Ethernet teaming features and procedures section of administrative procedures in the administration guide.			
Part B: To be completed for non-DHCP configurations only			
DNS Servers	IP Address		
1			
2			
3			
NAS NIC Port*	IP Address	Subnet Mask	Gateway Address
Eth 0			
Eth 1			
Integrated Lights-Out Eth port			
* The default NAS b2000 v2 has two Ethernet ports available for network connectivity. Disable ports that will not be used. Each Ethernet port must be configured with a separate subnet.			
Part C: SNMP Information (optional)			
Trap Destination (IP Address) Manager Client:			
Management Traps Community String:			
System Management Community String:			

Configuration Setup

3

This chapter provides information about configuring the HP StorageWorks NAS b2000 v2 using the online method.

Before completing the tasks in this chapter, verify that the NAS b2000 v2 is installed in the rack and that all cables and cords are connected. It is also necessary to collect certain information required during the configuration process, as mentioned in Chapter 2, “Before You Begin.”

Configuration Method

The method for configuring the NAS b2000 v2 is to use the WebUI configuration application that comes with the NAS b2000 v2.

WebUI Configuration

The NAS b2000 v2 includes a WebUI that is designed to be a graphical, easy-to-use application that gathers the necessary information for configuration. The WebUI may be accessed through two methods:

- Through auto discovery mode using the RapidLaunch utility
- By host name

Auto Discovery Method (Via RapidLaunch)

The NAS b2000 v2 includes a RapidLaunch CD that can run on any Windows-based PC using Internet Explorer 5.5 (or later).

Requirements

The following items are required to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or later) on the same network segment as the NAS b2000 v2
- RapidLaunch CD

Note: The NAS b2000 v2 is designed to be deployed without a monitor, keyboard, and mouse. These ports are available and supported by the NAS device, if used.

Procedure

To initialize the NAS b2000 v2 using the WebUI configuration application:

Caution: Do not power up the NAS device until steps 1 through 5 are completed.

1. Connect the Ethernet cables to the respective network ports of the NAS b2000 v2 and the corresponding network segments, in accordance with the information in the "Configuration Information" section in Chapter 2.
2. See Figure 5and Table 4 for the locations of the network ports on the NAS b2000 v2.
3. Verify that the Windows-based PC client is connected to the same subnet as the NAS b2000 v2.
4. Power on the Windows-based PC and wait until the operating system has completely loaded.
5. Insert the RapidLaunch CD into the DVD-ROM drive.
6. The RapidLaunch CD should automatically run. If the program does not start up automatically, the program may be run manually. Click **Start**, then select **Run** on the Windows taskbar, and then type the following:

   ```
   {CD ROM drive}:\setup.exe
   ```

   Wait for the interface to start up.
7. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.
8. Return to the Windows-based PC. Select **HP StorageWorks NAS** from the **Show** drop down list to have RapidLaunch list all NAS devices on the network, as shown in Figure 6.

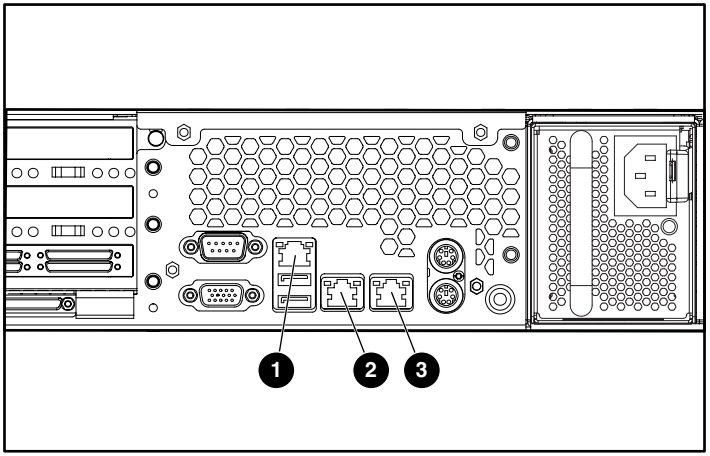

Figure 5: Ethernet connectors

Table 4: Ethernet Network Connectors

Item	Description
❶	Integrated Lights-Out port (iLO Eth)
❷	NIC Ethernet port 1 (Eth 1) used for data
❸	NIC Ethernet port 0 (Eth 0) used for data

Note: Connect a loopback cable to any of the NAS b2000 v2 Ethernet ports that are not configured for use.

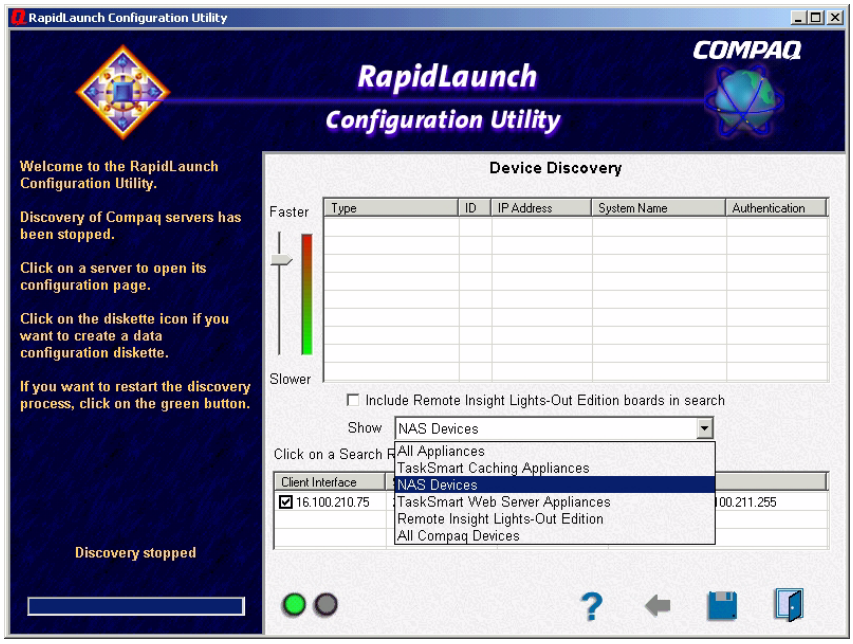

Figure 6: RapidLaunch search screen

9. All the NAS devices found on the network are displayed as shown in Figure 7. The NAS device will be displayed in the device discovery portion of the screen. It may take several minutes for the NAS device to be found on the network.

Note: The RapidLaunch utility will refresh periodically looking for new devices on the network. You may refresh the device list manually by selecting the **Refresh** button.

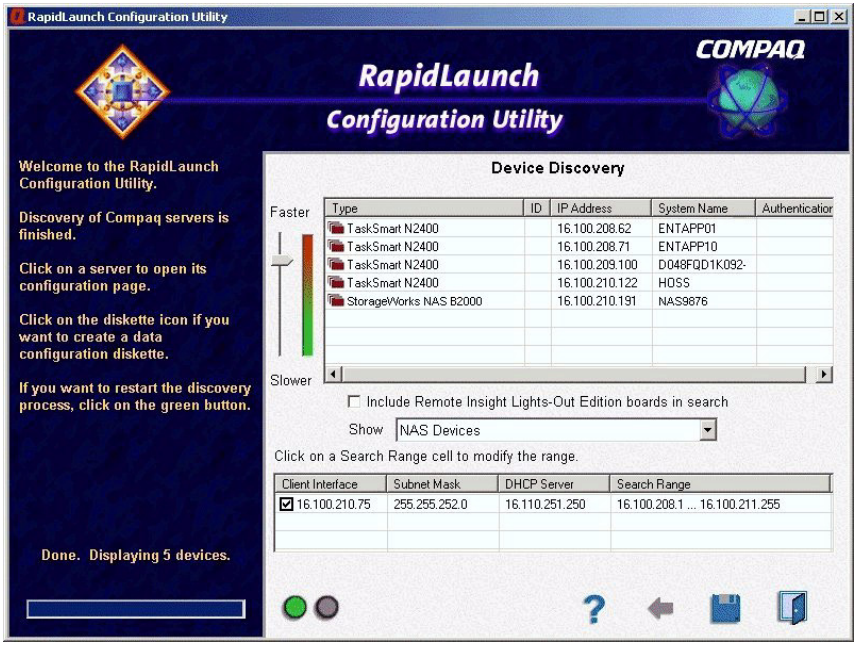

Figure 7: RapidLaunch device discovery screen

10. Select the HP StorageWorks NAS b2000 v2 device from the device list. This launches the WebUI configuration application (Rapid Startup) on the target HP StorageWorks NAS device, as shown in Figure 8.

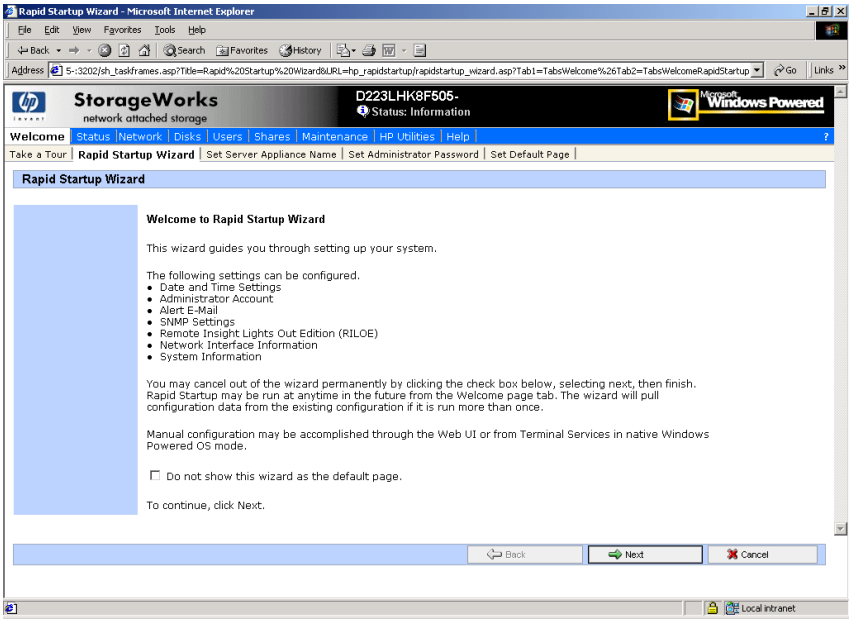
Rapid Startup Wizard - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address 5-:3202/sh_taskframes.asp?Title=Rapid%20Startup%20Wizard&URL=hp_rapidstartup/rapidstartup_wizard.asp?Tab1=TabsWelcome%26Tab2=TabsWelcomeRapidStartup
Go Links
StorageWorks
network attached storage
D223LHK8F505-
Status: Information
Microsoft Windows Powered
Welcome Status Network Disks Users Shares Maintenance HP Utilities Help
Take a Tour Rapid Startup Wizard Set Server Appliance Name Set Administrator Password Set Default Page
Rapid Startup Wizard
Welcome to Rapid Startup Wizard
This wizard guides you through setting up your system.
The following settings can be configured.
Date and Time Settings
Administrator Account
Alert E-Mail
SNMP Settings
Remote Insight Lights Out Edition (RILOE)
Network Interface Information
System Information
You may cancel out of the wizard permanently by clicking the check box below, selecting next, then finish. Rapid Startup may be run at anytime in the future from the Welcome page tab. The wizard will pull configuration data from the existing configuration if it is run more than once.
Manual configuration may be accomplished through the Web UI or from Terminal Services in native Windows Powered OS mode.
Do not show this wizard as the default page.
To continue, click Next.
Back
Next
Cancel
Local intranet

Figure 8: Rapid Startup wizard screen

11. Using the information from Table 3, fill in the screens that follow. Verify that your information is correct when the configuration review screen is displayed as shown in Figure 9.
12. Click the **Finish** icon to exit Rapid Startup. Close the browser window. The NAS b2000 v2 will now reboot to set the configuration information.
13. Exit the RapidLaunch utility and remove the RapidLaunch CD from the DVD-ROM drive and store it in a secure location.

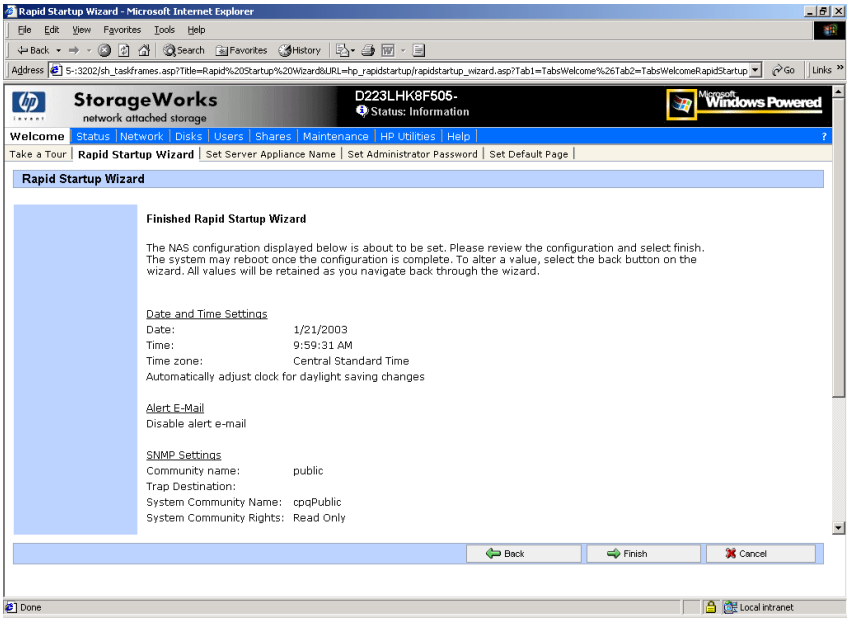
Rapid Startup Wizard - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address 5-:3202/sh_taskframes.asp?Title=Rapid%20Startup%20Wizard&URL=hp_rapidstartup/rapidstartup_wizard.asp?Tab1=TabsWelcome%26Tab2=TabsWelcomeRapidStartup
Go Links
StorageWorks
network attached storage
D223LHK8F505-
Status: Information
Microsoft Windows Powered
Welcome Status Network Disks Users Shares Maintenance HP Utilities Help
Take a Tour Rapid Startup Wizard Set Server Appliance Name Set Administrator Password Set Default Page
Rapid Startup Wizard
Finished Rapid Startup Wizard
The NAS configuration displayed below is about to be set. Please review the configuration and select finish.
The system may reboot once the configuration is complete. To alter a value, select the back button on the
wizard. All values will be retained as you navigate back through the wizard.
Date and Time Settings
Date: 1/21/2003
Time: 9:59:31 AM
Time zone: Central Standard Time
Automatically adjust clock for daylight saving changes
Alert E-Mail
Disable alert e-mail
SNMP Settings
Community name: public
Trap Destination:
System Community Name: cpqPublic
System Community Rights: Read Only
Back
Finish
Cancel
Done
Local intranet

Figure 9: Rapid Startup configuration review screen

Direct Access Method (Using Hostname)

The NAS b2000 v2 ships by default with DHCP enabled on the network port. If the system is placed on a DHCP serviced network and the serial number of the device is known, it can be accessed through a client running Microsoft Internet Explorer 5.5 (or later) on that network, using the 3201 port of the device. The serial number may be found behind the front bezel of the NAS b2000 v2, as illustrated in Figure 10.

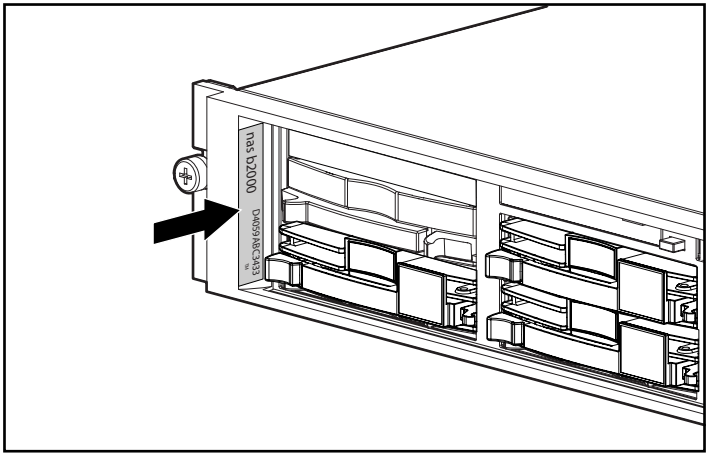

Figure 10: Serial number location

Requirements

The following items are required to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or later) on the same segment as the NAS b2000 v2
- DHCP-serviced network
- Serial number of the NAS b2000 v2

Note: The NAS b2000 v2 is designed to be deployed without a monitor, keyboard, and mouse. These ports are available and supported by the NAS device, if used.

Procedure

To initialize the NAS b2000 v2 using the WebUI configuration application:

1. Connect the Ethernet cables to the respective network ports of the NAS b2000 v2 and the corresponding network segments in accordance with the information in the "Configuration Information" section in Chapter 2.
2. See Figure 5 and Table 4 for the locations of the network ports on the NAS b2000 v2.

3. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.
4. Open Internet Explorer on the Windows-based PC. Enter `http://`, the serial number of the NAS b2000 v2 followed by a hyphen (`-`), followed by `:3201`. Press **Enter**. This launches the WebUI configuration application (Rapid Startup) on the target HP StorageWorks NAS device as shown in Figure 8.

   Example: `http://D4059ABC3433-:3201`

Note: The NAS device will respond when the NAS operating system has started.

5. Using the information from Table 4, fill in the screens that follow. Verify that your information is correct when the configuration review screen is displayed, as shown in Figure 9.
6. Click the **Finish** icon to exit Rapid Startup. Close the browser window. The NAS b2000 v2 will now reboot to set the configuration information.

Completing the System Configuration

After the configuration process, there are additional tasks required in order to begin sharing files on the network. All procedures for the configuration tasks may be found in the *HP StorageWorks NAS b2000 v2 Administration Guide*. These include:

- Changing the system date and time
- Configuring storage using ACU and LDM
- Establishing file shares and creating access permissions
- Activating the iLO key (locate the Integrated Lights-Out Advanced Pack License Installation Card and follow the enclosed instructions)

In addition to the required configuration steps above, several optional tasks may need to be completed:

- Enabling additional protocols and the associated file shares
- NIC teaming

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